Electronic Version
Stylesheet Version v1.1.1

Claims

[c1] What is claimed is:

1.A microinjector comprising:

a chamber for containing fluid;

an orifice in fluid communication with the chamber, the orifice disposed above the chamber;

an actuator disposed proximately adjacent the orifice and external to the chamber for ejecting fluid from the chamber;

a metal plate disposed above the chamber; and

a conduction channel for connecting the metal plate to ground.

[c2] 2.The microinjector of claim 1, wherein the actuator comprises a first actuating component and a second actuating component for sequentially generating a first bubble and a second bubble respectively.

[c3] 3.The microinjector of claim 2, wherein the first actuating component has a cross sectional area smaller than that of the second actuating component.

[c4] 4.The microinjector of claim 1 further comprising a manifold between a fluid tank and the chamber for pass-

ing fluid from the fluid tank to the chamber.

[c5] 5.The microinjector of claim 1 further comprising a driving circuit electrically connected to the actuator for controlling the actuator, an end of the driving circuit connected to the actuator via a metal connector.

[c6] 6.The microinjector of claim 5, wherein the metal connector is made of a metal selected from a group consisting of aluminum, gold, copper, tungsten, and alloys of Al-Si-Cu.

[c7] 7.The microinjector of claim 1 further comprising a metal oxide semiconductor field effect transistor (MOSFET) electrically connected to the actuator via a metal connector.

[c8] 8.The microinjector of claim 1, wherein the conduction channel is made of a metal selected from a group consisting of gold and nickel.

[c9] 9.The microinjector of claim 5, wherein the driving circuit comprises MOSFETs, bipolar transistors, JFET transistors, or diodes.